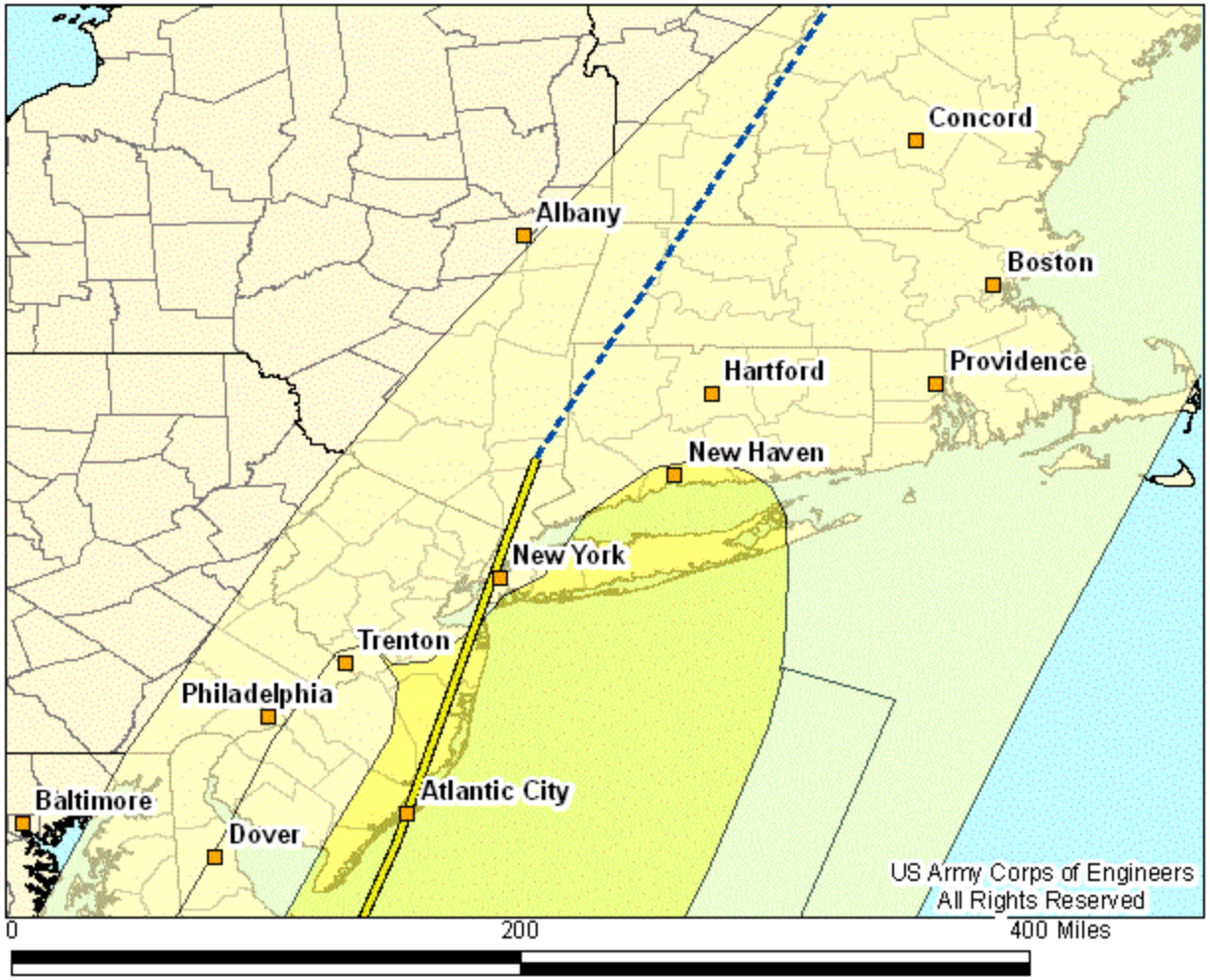
Hurricane Irene Projected Damage Areas

Landfall Plus About 1 Hours

US Army Corps of Engineers

For Planning Purposes Only!



Post Landfall Projected Damage Areas

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Projected Damage Areas

- CAT 0-type damage
- CAT 1-type damage
- CAT 2-type damage
- CAT 3-type damage
- CAT 4-type damage
- CAT 5-type damage

Information provided on this page displays a projected or actual Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast and extrapolated by LRL staff to represent a landfall condition that has either occurred or may occur in the near future.

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Projected Damage Areas

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

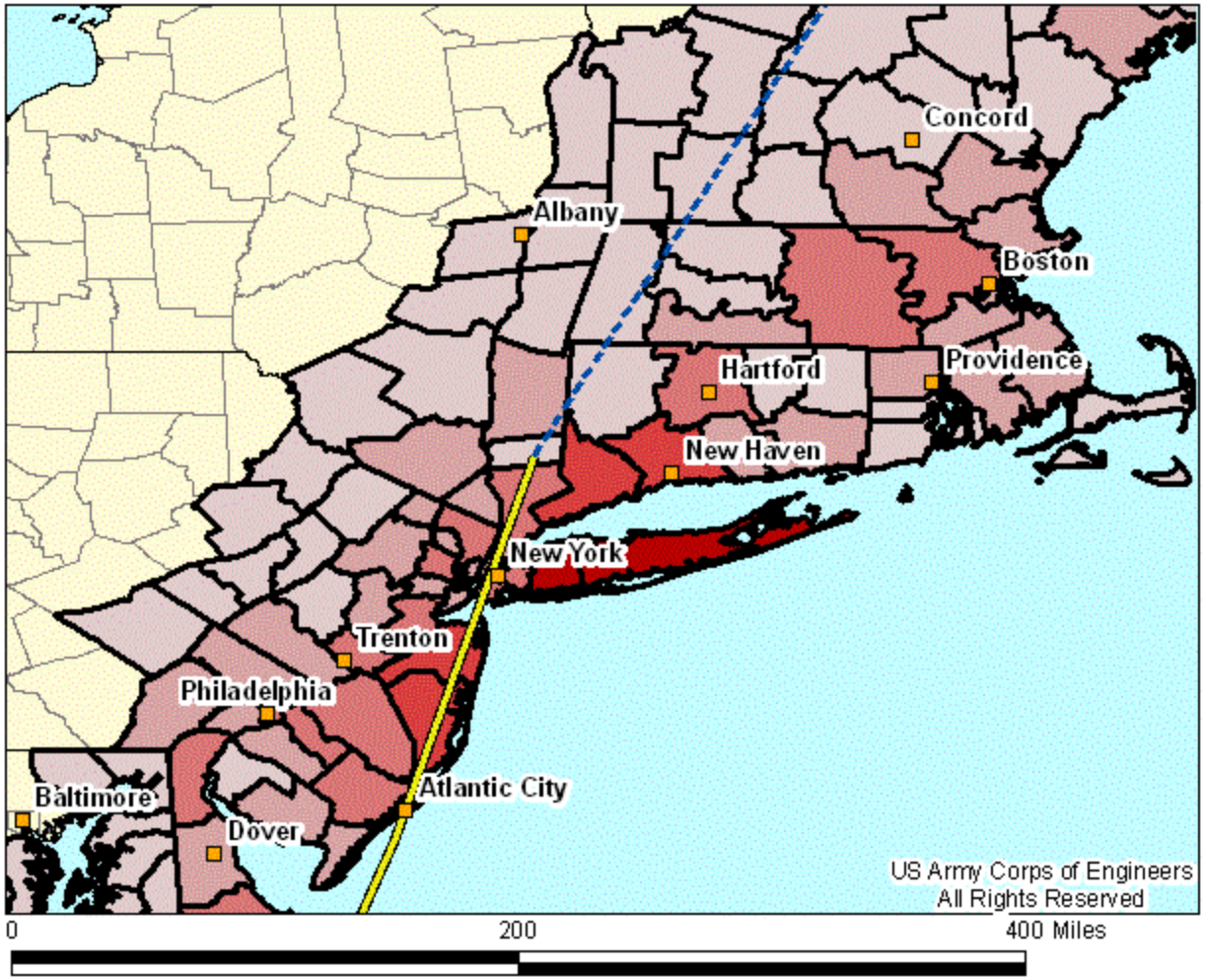
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Debris Model

Landfall Plus About 1 Hours

For Planning Purposes Only!



Post Landfall Debris Model Results

New Jersey - 5,735,000 Yards
New York - 4,814,000 Yards
Connecticut - 1,889,000 Yards

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Debris

- < 100,000 cubic yards
- 100,000 - 249,999 cubic yards
- 250,000 - 499,999 cubic yards
- 500,000 - 999,999 cubic yards
- >1,000,000 cubic yards

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast. The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Debris Model	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 2 of 21

US Army Corps of Engineers

Hurricane Irene Debris Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	Yards per State	County	Yards per County
Connecticut		Fairfield County	530,000
		Hartford County	329,000
		Litchfield County	91,000
		Middlesex County	103,000
		New Haven County	621,000
		New London County	107,000
		Tolland County	58,000
		Windham County	50,000
Connecticut	1,889,000		

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

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Source: US Army Corps of Engineers, All Rights Reserved

Hurricane Irene Debris Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Debris Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	Yards per State	County	Yards per County
New Jersey		Atlantic County	306,000
		Bergen County	362,000
		Burlington County	387,000
		Camden County	420,000
		Cape May County	166,000
		Cumberland County	158,000
		Essex County	283,000
		Gloucester County	219,000
		Hudson County	226,000
		Hunterdon County	66,000
		Mercer County	279,000
		Middlesex County	342,000
		Monmouth County	712,000
		Morris County	210,000
		Ocean County	869,000
		Passaic County	219,000
		Salem County	44,000
		Somerset County	117,000
		Sussex County	75,000
		Union County	217,000
		Warren County	58,000
New Jersey	5,735,000		

State	Yards per State	County	Yards per County
New York		Albany County	4,000
		Bronx County	143,000
		Columbia County	32,000
		Dutchess County	111,000
		Greene County	18,000
		Kings County	349,000
		Nassau County	1,091,000
		New York County	126,000
		Orange County	137,000
		Putnam County	38,000
		Queens County	389,000
		Rensselaer County	34,000
		Richmond County	171,000
		Rockland County	101,000
		Suffolk County	1,666,000
		Sullivan County	10,000
		Ulster County	89,000
		Washington County	2,000
		Westchester County	303,000
New York	4,814,000		

The amount of debris forecasted is possible total volume, not necessarily the volume that may need to be removed with Federal funds, but does not include volume that may be covered by private insurance. Debris volume may include storm surge generated debris.

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Source: US Army Corps of Engineers, All Rights Reserved

Hurricane Irene Debris Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

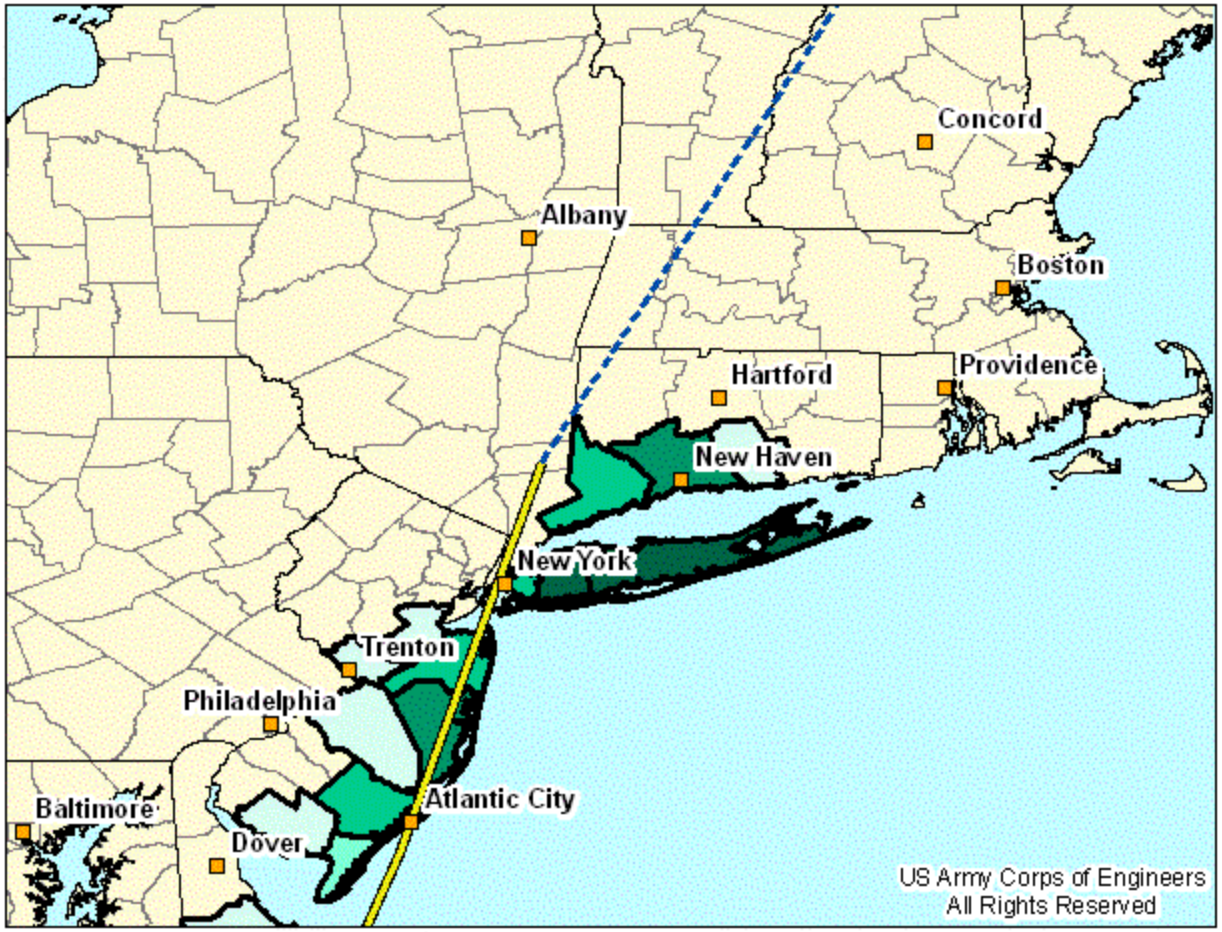
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Commodities Model

Landfall Plus About 1 Hours

For Planning Purposes Only!



Post Landfall Water Model Results

Day One / Day Two / Day Three
New York - 143 Truckloads
New Jersey - 73 Truckloads
Connecticut - 41 Truckloads

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Commodities
- < 5 Trucks Each
- 5 - 10 Trucks Each
- 11 - 20 Trucks Each
- 21 - 40 Trucks Each
- > 40 Trucks Each

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC ***(1100 EDT 08/28/2011)*** forecast. The amount of commodities forecasted is based on Mission Guide Book requirements and SME input. The graphic represents daily needs with a ramp-up in the distribution system – three days for Points of Distribution (PODs) to be fully in place and operational. Volume shown is for each commodity – water and ice. Commodity need may be supplied by multiple agencies and/or sources.

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Commodities Model	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	

US Army Corps of Engineers

Hurricane Irene Commodities Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	Truckloads per State	County	Truckloads per County
Connecticut		Fairfield County	16
		Middlesex County	1
		New Haven County	24
Connecticut	41		
New Jersey		Atlantic County	14
		Burlington County	1
		Cape May County	6
		Cumberland County	1
		Mercer County	1
		Middlesex County	1
		Monmouth County	20
		Ocean County	29
New Jersey	73		
New York		Kings County	1
		Nassau County	58
		Queens County	13
		Suffolk County	71
New York	143		

Source: US Army Corps of Engineers, All Rights Reserved

The amount of commodities forecasted is based on Mission Guide Book requirements and SME input and the above table indicates suggested daily needs based on full deployment of a commodities distribution system. Volume shown is for each commodity – water and ice. Commodity need may be supplied by multiple agencies and/or sources.

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Commodities Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

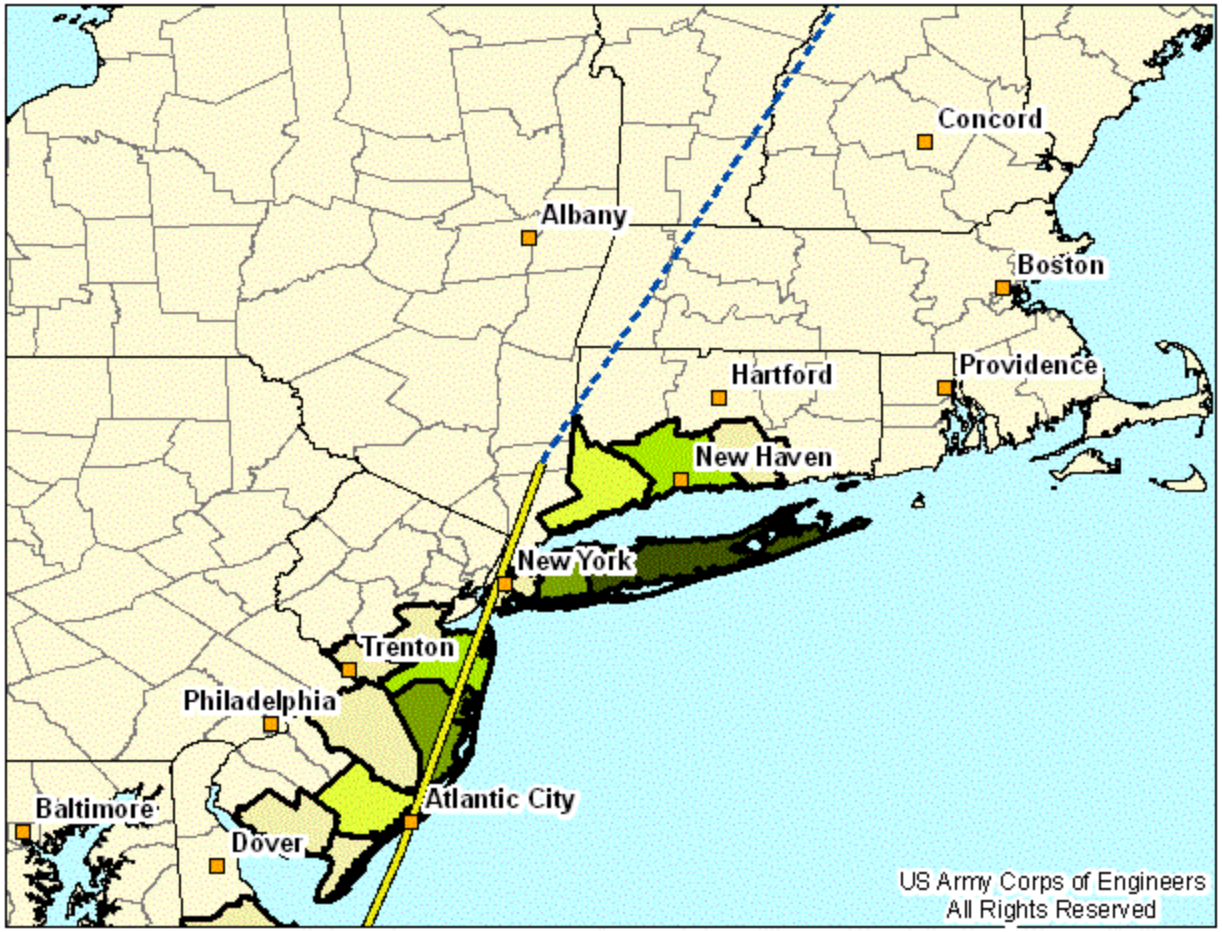
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Temporary Roofing Model

Landfall Plus About 1 Hours

For Planning Purposes Only!



Post Landfall Temporary Roofing Model Results

New York - 25,600
New Jersey - 18,400
Connecticut - 9,500

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Temporary Roofing

- < 2,000 units
- 2,000 - 3,999 units
- 4,000 - 5,999 units
- 6,000 - 9,999 units
- > 10,000 units

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast. Temporary roofing is based on 5% in CAT 1.

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Roofing Model	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 9 of 21

US Army Corps of Engineers

Hurricane Irene Temporary Roofing Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	House Units per State	County	House Units per County
Connecticut		Fairfield County	3,700
		Middlesex County	300
		New Haven County	5,500
Connecticut	9,500		
New Jersey		Atlantic County	3,200
		Burlington County	< 100
		Cape May County	1,600
		Cumberland County	< 100
		Mercer County	200
		Middlesex County	< 100
		Monmouth County	5,400
		Ocean County	8,000
New Jersey	18,400		
New York		Kings County	< 100
		Nassau County	9,100
		Queens County	1,600
		Suffolk County	14,900
New York	25,600		

Temporary roofing is based on 5% in CAT 1.

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Source: US Army Corps of Engineers, All Rights Reserved

Hurricane Irene Roofing Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

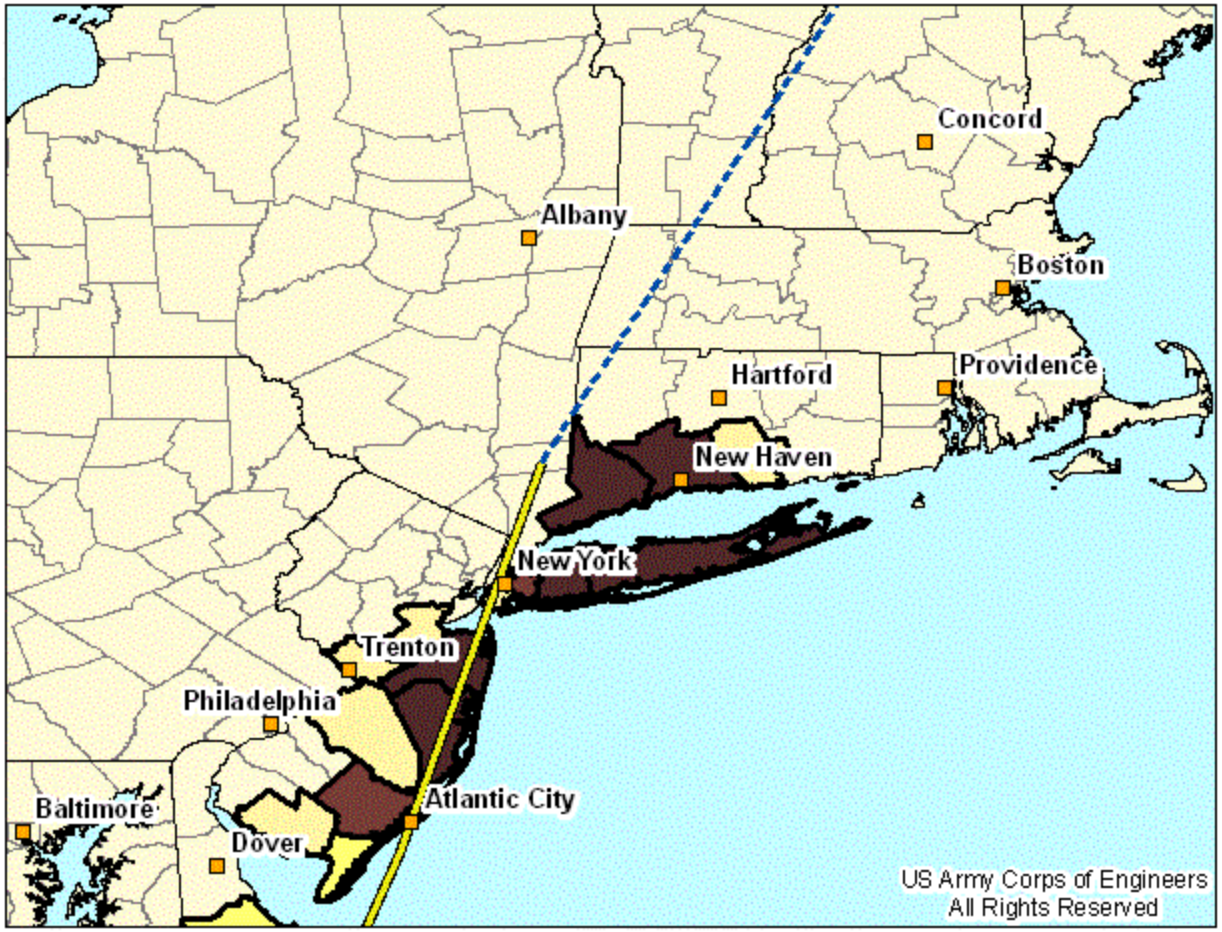
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Population Model

Landfall Plus About 1 Hours

For Planning Purposes Only!



Post Landfall Population Model Results

New York - 2,839,000
New Jersey - 1,356,000
Connecticut - 685,000

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Population

- < 25,000 persons
- 25,000 - 99,999 persons
- 100,000 - 174,999 persons
- 175,000 - 249,999 persons
- > 250,000 persons

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast. The numbers of persons included in this model output are those that would be included within estimated hurricane force winds (Census 2000 values adjusted to July 2010 values).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Population Model	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	

US Army Corps of Engineers

Hurricane Irene Population Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	Population per State	County	Population per County
Connecticut		Fairfield County	270,000
		Middlesex County	17,000
		New Haven County	398,000
Connecticut	685,000		
New Jersey		Atlantic County	232,000
		Burlington County	5,000
		Cape May County	96,000
		Cumberland County	< 1,000
		Mercer County	11,000
		Middlesex County	2,000
		Monmouth County	436,000
		Ocean County	574,000
New Jersey	1,356,000		
New York		Kings County	< 1,000
		Nassau County	1,122,000
		Queens County	219,000
		Suffolk County	1,498,000
New York	2,839,000		

The number of persons estimated to be within the hurricane force winds comes from Census 2000 values adjusted to July 2010 values.

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Source: US Army Corps of Engineers, All Rights Reserved

Hurricane Irene Population Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

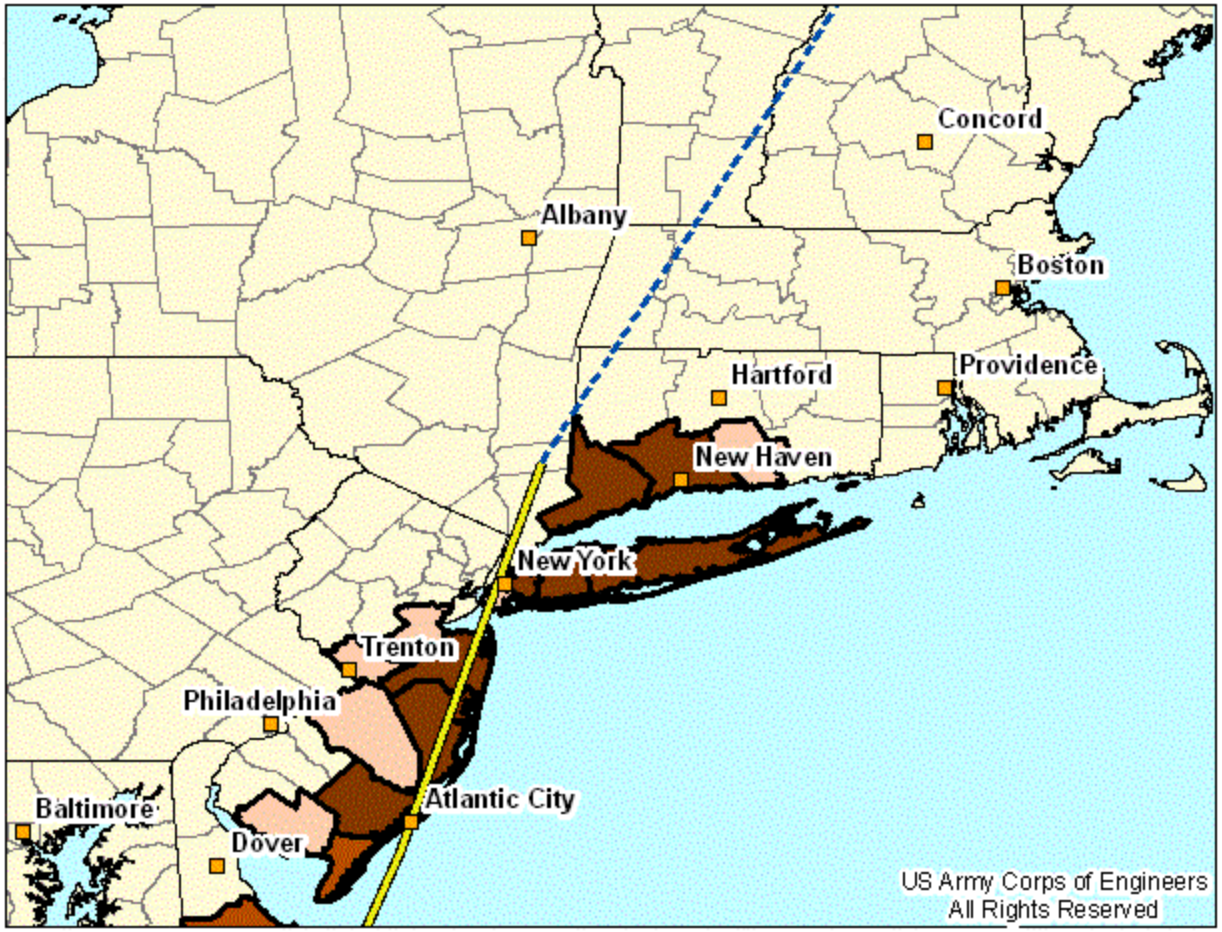
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Households Model

Landfall Plus About 1 Hours

For Planning Purposes Only!



Post Landfall Households Model Results

New York - 939,000
New Jersey - 525,000
Connecticut - 263,000

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Forecast Track
Historic Track

Households

- < 7,500 households
- 7,500 - 14,999 households
- 15,000 - 24,999 households
- 25,000 - 49,999 households
- > 50000 households

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast. The numbers of households included in this model output are those that would be included within estimated hurricane force winds (Census 2000 values adjusted to July 2010 values).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Households Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Households Model

Landfall Plus About 1 Hours

For Planning Purposes Only!

State	Households per State	County	Households per County
Connecticut		Fairfield County	100,000
		Middlesex County	7,000
		New Haven County	156,000
Connecticut	263,000		
New Jersey		Atlantic County	88,000
		Burlington County	2,000
		Cape May County	40,000
		Cumberland County	< 1,000
		Mercer County	4,000
		Middlesex County	< 1,000
		Monmouth County	165,000
		Ocean County	226,000
New Jersey	525,000		
New York		Kings County	< 1,000
		Nassau County	372,000
		Queens County	73,000
		Suffolk County	494,000
New York	939,000		

The number of households estimated to be within the hurricane force winds comes from Census 2000 values adjusted to July 2010 values.

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Source: US Army Corps of Engineers, All Rights Reserved

Hurricane Irene Households Model

Generated By:
Siemsen, LRL 1230 EDT 08/28/2011

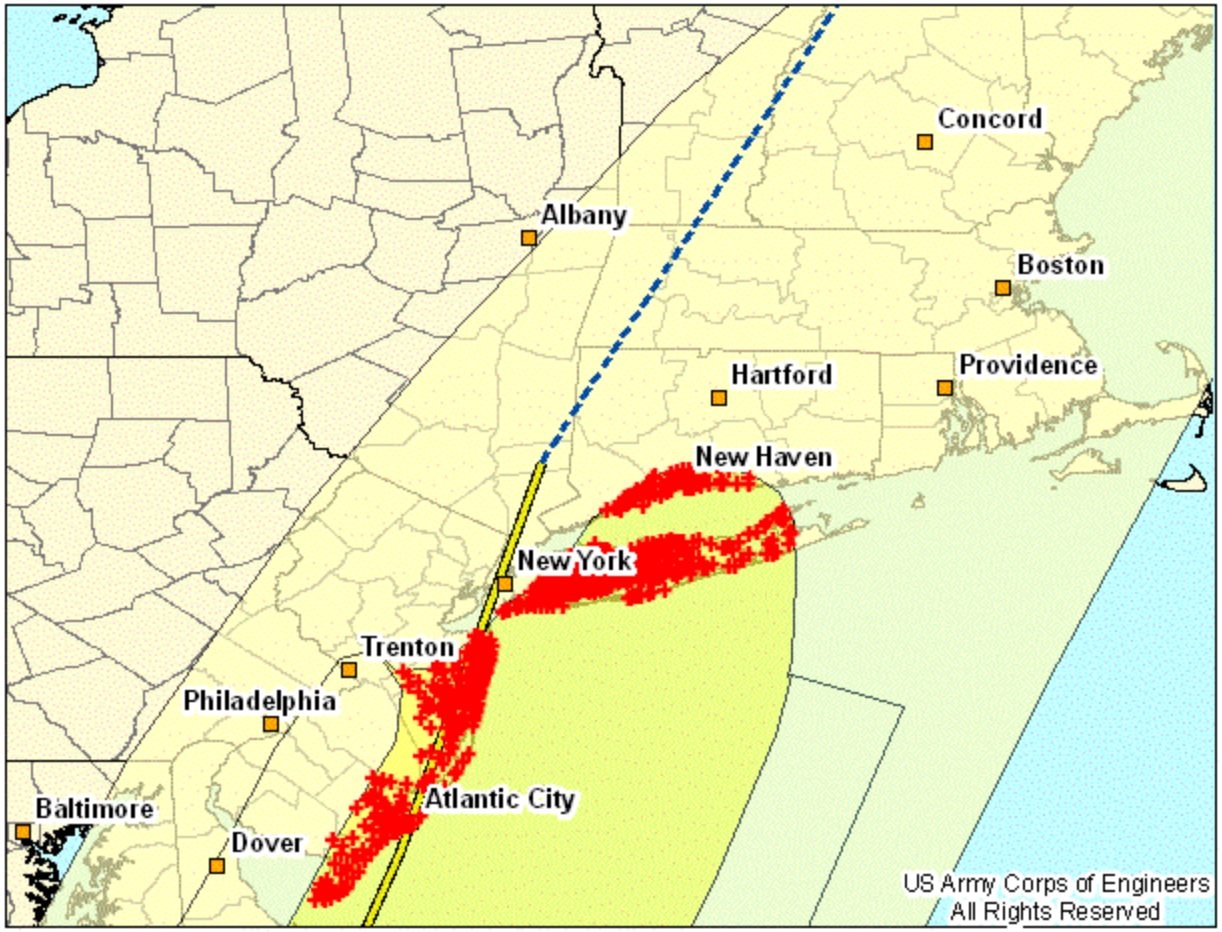
Sources:
HURREVAC
LRL-DEBRIS

US Army Corps of Engineers

Hurricane Irene Fire Stations

Landfall Plus About 1 Hours

For Planning Purposes Only!



Most Probable Landfall Fire Stations Inside Hurricane Force Winds

New York - 346
New Jersey - 247
Connecticut - 72

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

+ Fire Stations
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.
The number of fire stations included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil
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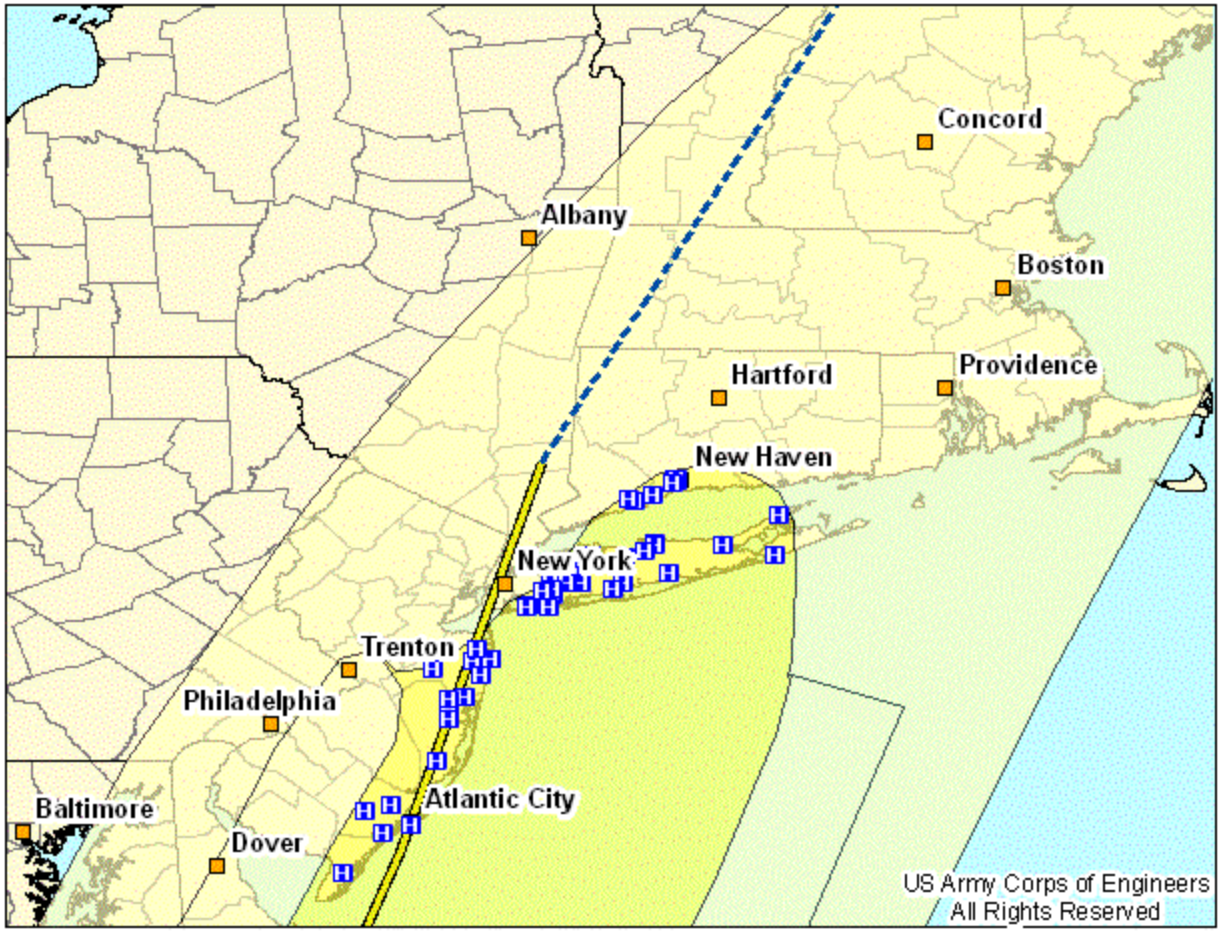
Hurricane Irene Fire Stations	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 15 of 21

US Army Corps of Engineers

Hurricane Irene Hospitals

Landfall Plus About **1** Hours

For Planning Purposes Only!



Most Probable Landfall Hospitals Inside Hurricane Force Winds

New Jersey - 23
New York - 22
Connecticut - 8

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Hospitals
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.
The number of hospitals included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Hospitals	
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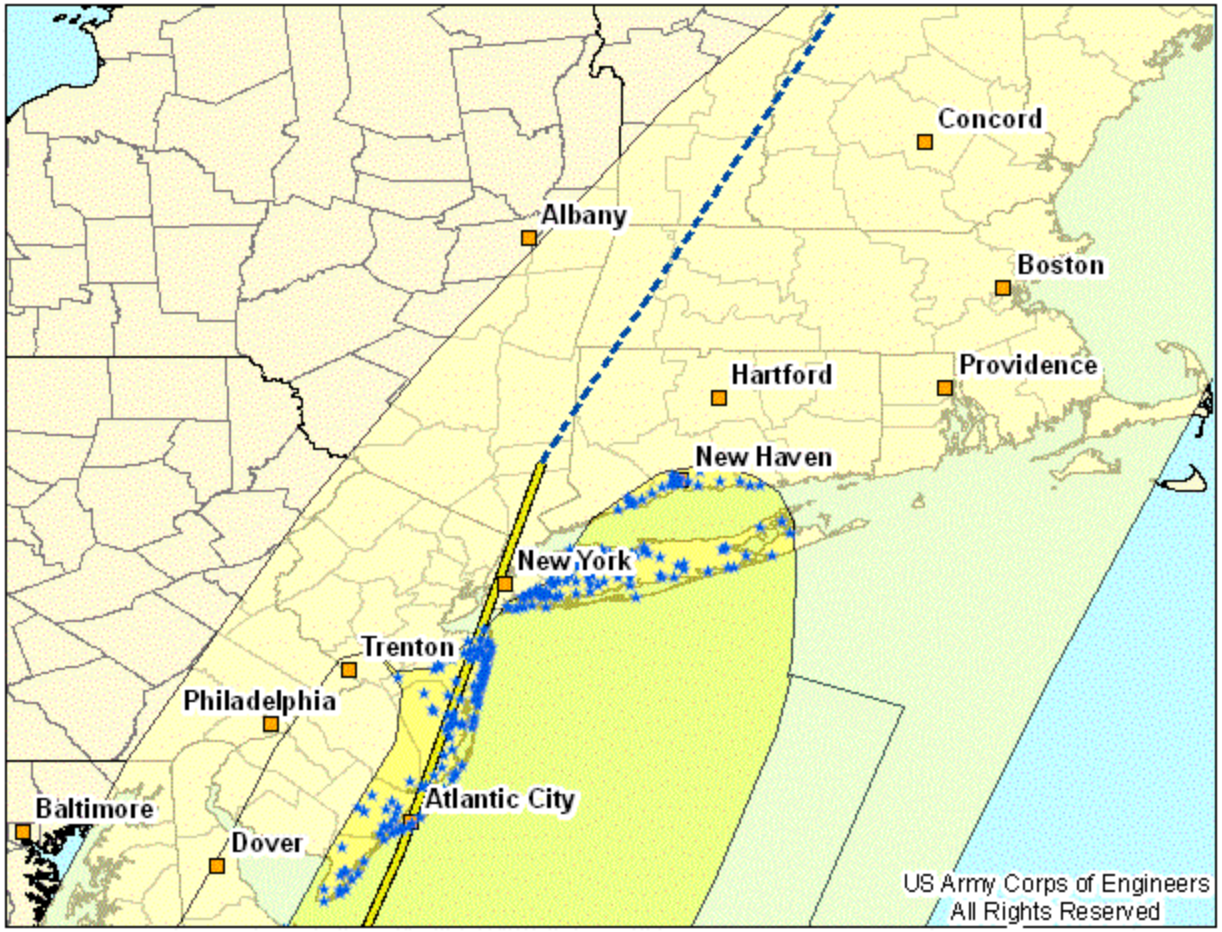
Sources: HURREVAC LRL-DEBRIS	Page 16 of 21

US Army Corps of Engineers

Hurricane Irene Law Enforcement

Landfall Plus About 1 Hours

For Planning Purposes Only!



Most Probable Landfall Law Enforcement Inside Hurricane Force Winds

New Jersey - 111
New York - 83
Connecticut - 29

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Law Enforcement
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.

The number of law enforcement included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Law Enforcement	
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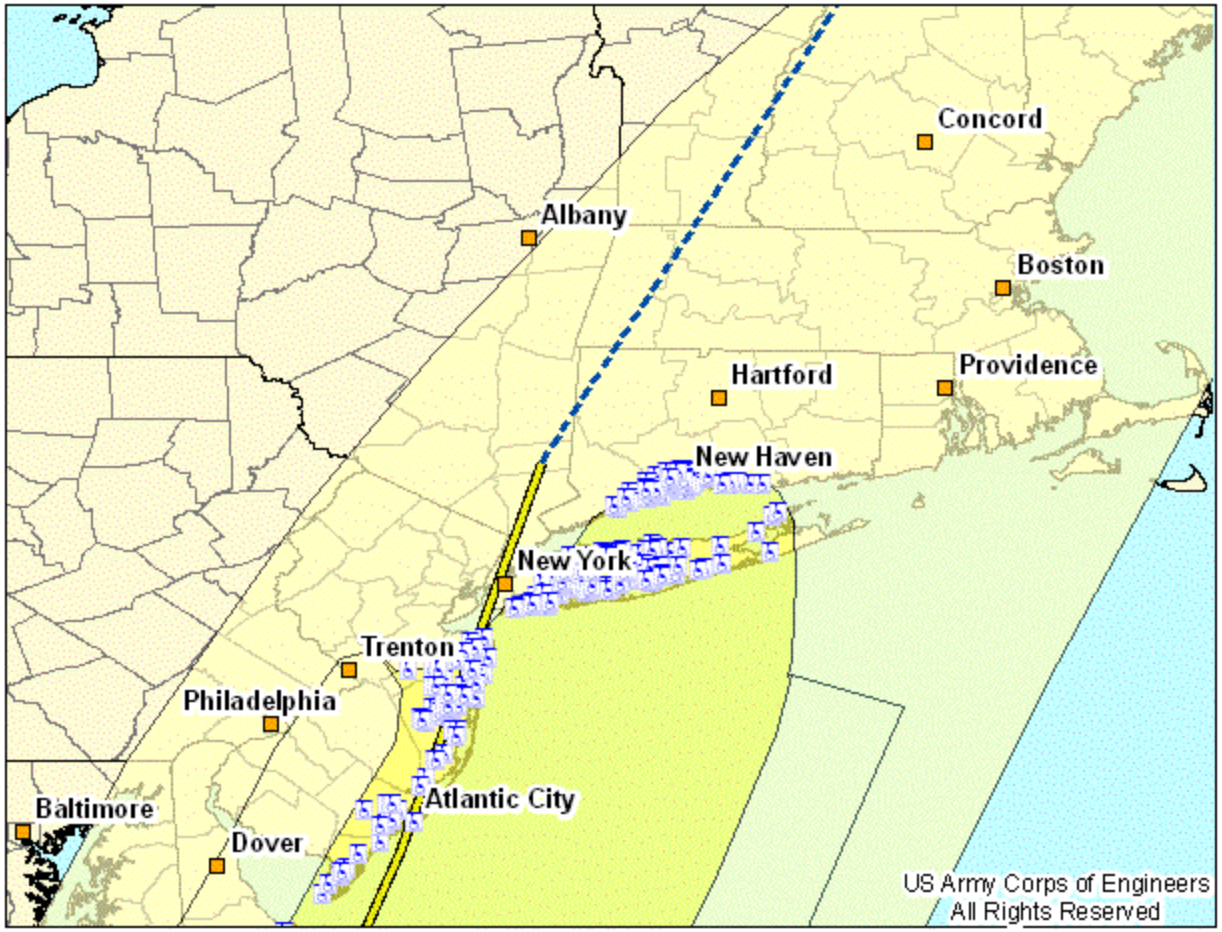
Sources: HURREVAC LRL-DEBRIS	Page 17 of 21

US Army Corps of Engineers

Hurricane Irene Nursing Homes

Landfall Plus About 1 Hours

For Planning Purposes Only!



Most Probable Landfall Nursing Homes Inside Hurricane Force Winds

New York - 156
New Jersey - 115
Connecticut - 68

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Nursing Homes
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.
The number of nursing homes included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil
or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

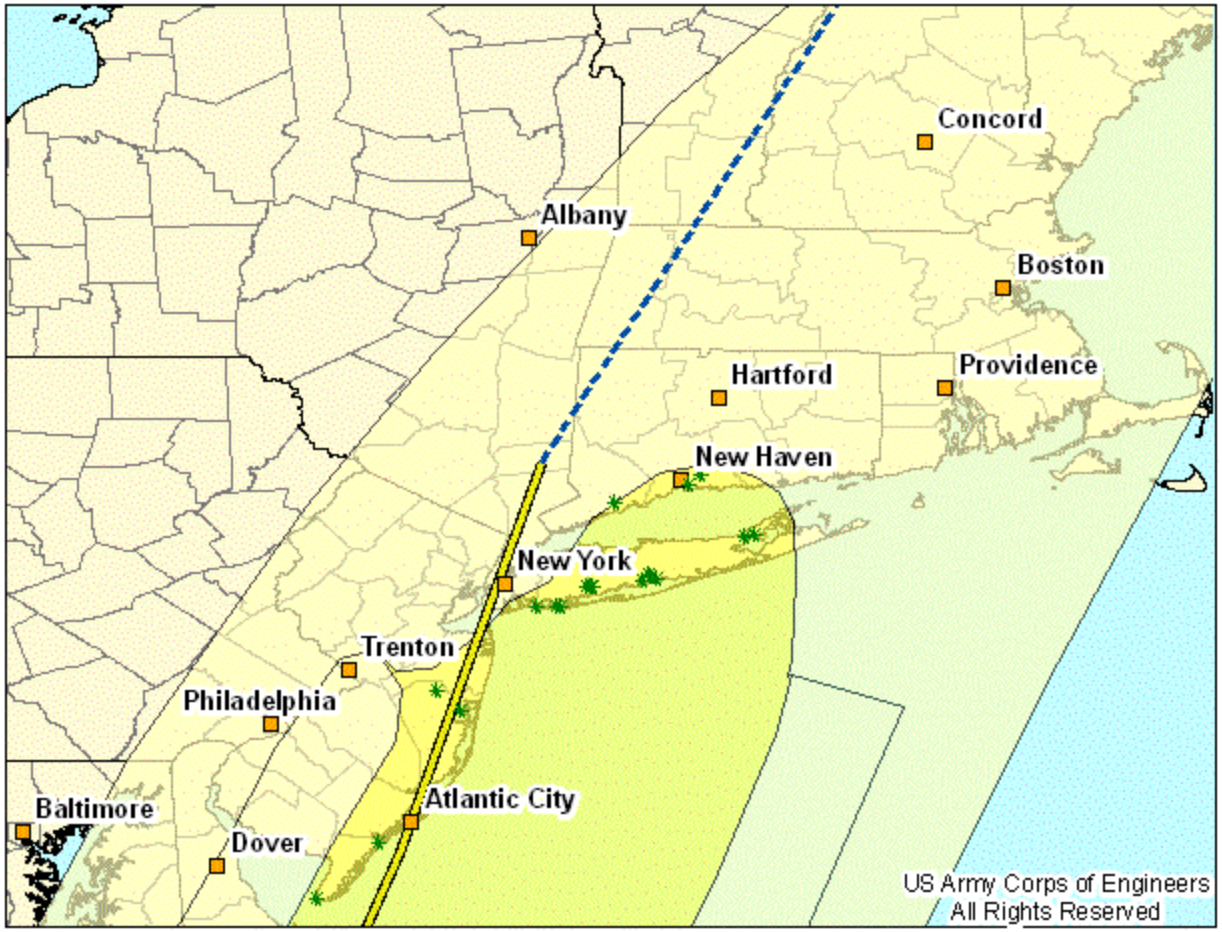
Hurricane Irene Nursing Homes	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	

US Army Corps of Engineers

Hurricane Irene Potable Water

Landfall Plus About 1 Hours

For Planning Purposes Only!



Most Probable Landfall Potable Water Inside Hurricane Force Winds

New York - 12
New Jersey - 4
Connecticut - 3

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Potable Water
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.

The number of potable water included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

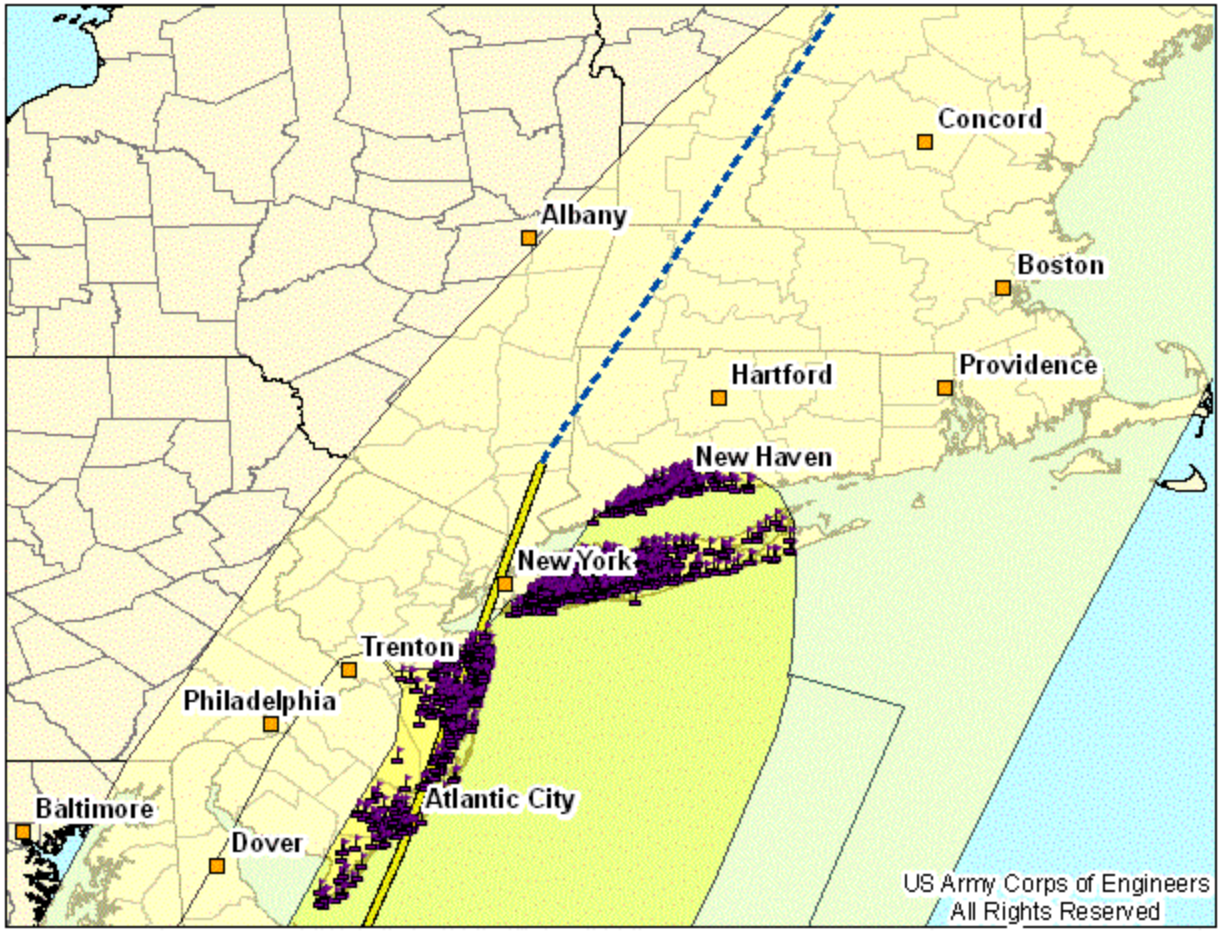
Hurricane Irene Potable Water	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 19 of 21

US Army Corps of Engineers

Hurricane Irene Schools

Landfall Plus About 1 Hours

For Planning Purposes Only!



Most Probable Landfall Schools Inside Hurricane Force Winds

New York - 644
New Jersey - 358
Connecticut - 215

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Schools
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.

The number of schools included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

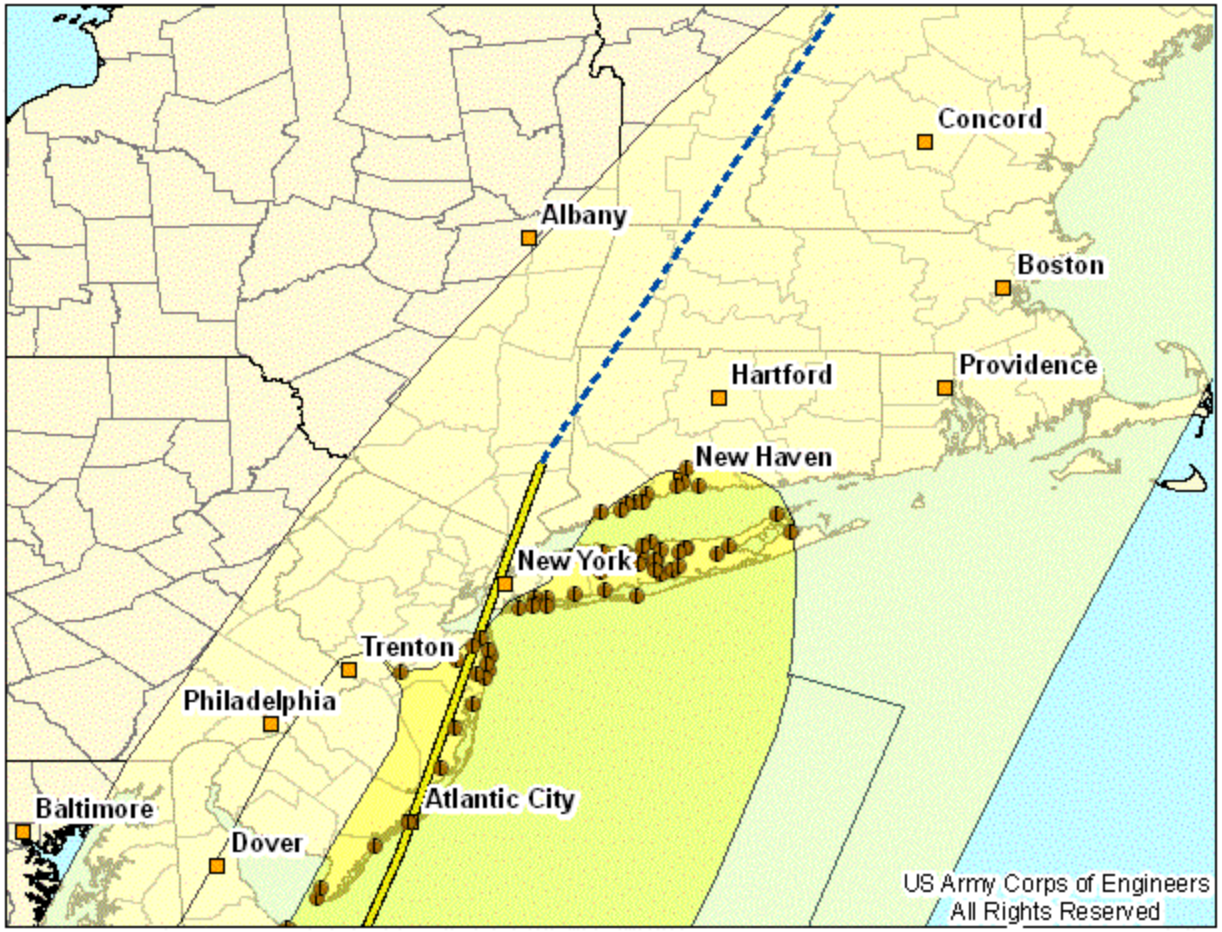
Hurricane Irene Schools	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 20 of 21

Hurricane Irene Sewage Treatment Plants

Landfall Plus About 1 Hours

US Army Corps of Engineers

For Planning Purposes Only!



Most Probable Landfall Sewage Treatment Plants Inside Hurricane Force Winds

New York - 38
New Jersey - 18
Connecticut - 10

Model results per County on following page

This model is based on a Category 1 storm making landfall over New York, NY.

Sewage Treatment Plants
Forecast Track
Historic Track

Information provided on this page displays a Category 1 storm making landfall over New York, NY. These projections are based on information from the NHC (1100 EDT 08/28/2011) forecast.

The number of sewage treatment plants included in this output are those that would be included within estimated hurricane force winds (data source: HSIP Gold 2011).

Details about this model may be obtained at http://www.englink.usace.army.mil or contact Louisville District staff at DLL-CELRL-GIS@usace.army.mil

Hurricane Irene Sewage Treatment Plants	
Generated By: Siemsen, LRL 1230 EDT 08/28/2011	
Sources: HURREVAC LRL-DEBRIS	Page 21 of 21